Ref. No.3547

ONKYO SERVICE MANUAL

SYNTHESIZED
FM STEREO/AM TUNER
MODEL T-4711

European model(FM STEREO TUNER)

Black,Silver and Golden models

BUDN,GUDN	120V, AC,60Hz
BUP,BUPB,BUPT,SUPT,SUPB,GUPT	230V AC,50Hz
BUWT,GUWT	120/220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

TABLE OF CONTENTS

ONKYO AUDIO COMPONENTS

SPECIFICATIONS

FM

Tuning Range:	European and Worldwide models: 87.50 - 108.00 MHz (50 kHz steps) USA and Canadian models: 87.90 - 107.90 MHz (200 kHz steps)
Usable Sensitivity:	Mono: 10.3 dBf 0.9μV, 75 Ohms IHF 0.8μV, 75 Ohms DIN Stereo: 17.2 dBf 2.0μV, 75 Ohms IHF 20μV, 75 Ohms DIN
50 dB Quieting Senstivity:	Mono: 16.1 dBf 1.7μV 75 Ohms Stereo: 36.1 dBf 17μV 75 Ohms
Capture Ratio:	1.3 dB
Image Rejection Ratio:	100 dB
IF Rejection Ratio:	100 dB
Signal-to-Noise Ratio:	Mono: 85 dB IHF Stereo: 77 dB IHF 70 dB IHF (Narrow)
Selectivity:	70 dB DIN (±300 kHz, 40 kHz dev.)
AM Suppression Ratio:	50 dB
Total Harmonic Distortion:	Mono: 0.1% 0.3% (Normal 40 kHz dev.) Stereo: 0.2% 0.7% (Normal 40 kHz dev.)
Frequency Response:	30 - 15,000 Hz (+0.5, -1.0 dB)
Stereo Separation:	45 dB at 1 kHz 33 dB at 70 - 10,000 Hz
Output Voltage:	1.0 V
Muting Level:	17.2 dBf 2.0 μV, 75 Ohms

AM

Tuning Range:	USA and Canadian models: 530 - 1710 kHz (10 kHz steps) Asian models: 522 - 1611 kHz (9 kHz steps) Worldwide models: 531 - 1602 kHz (9 kHz steps) 530 - 1710 kHz (10 kHz steps)
Usable Sensitivity:	25μ V
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	40 dB
Signal-to- Noise Ratio:	40 dB
Total Harmonic Distortion:	0.8%
Output Voltage:	250 mV

General

Power Supply:	USA and Canadian models: AC 120V, 60Hz European models: AC 230V, 50Hz Worldwide models: AC 120V and 220 - 230V switchable, 60/50 Hz
Dimensions (W × H × D):	435 × 91 × 373 mm 17-1/8" × 3-9/16" × 14-11/16"
Mass:	4.9 kg, 10.8 lbs.

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

Specifications: More than 10MΩ at 500V.

2.Memory Preservation

This unit does not require memory preservation batteries. A Built memory power back-up system proserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once io order to change the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. the period of time during which memory contents are preserved after power has last been turned off varies depending on climat e and placement of the unit.

On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the is exposed to very high humidity or used in an area with an extremely humid climate.

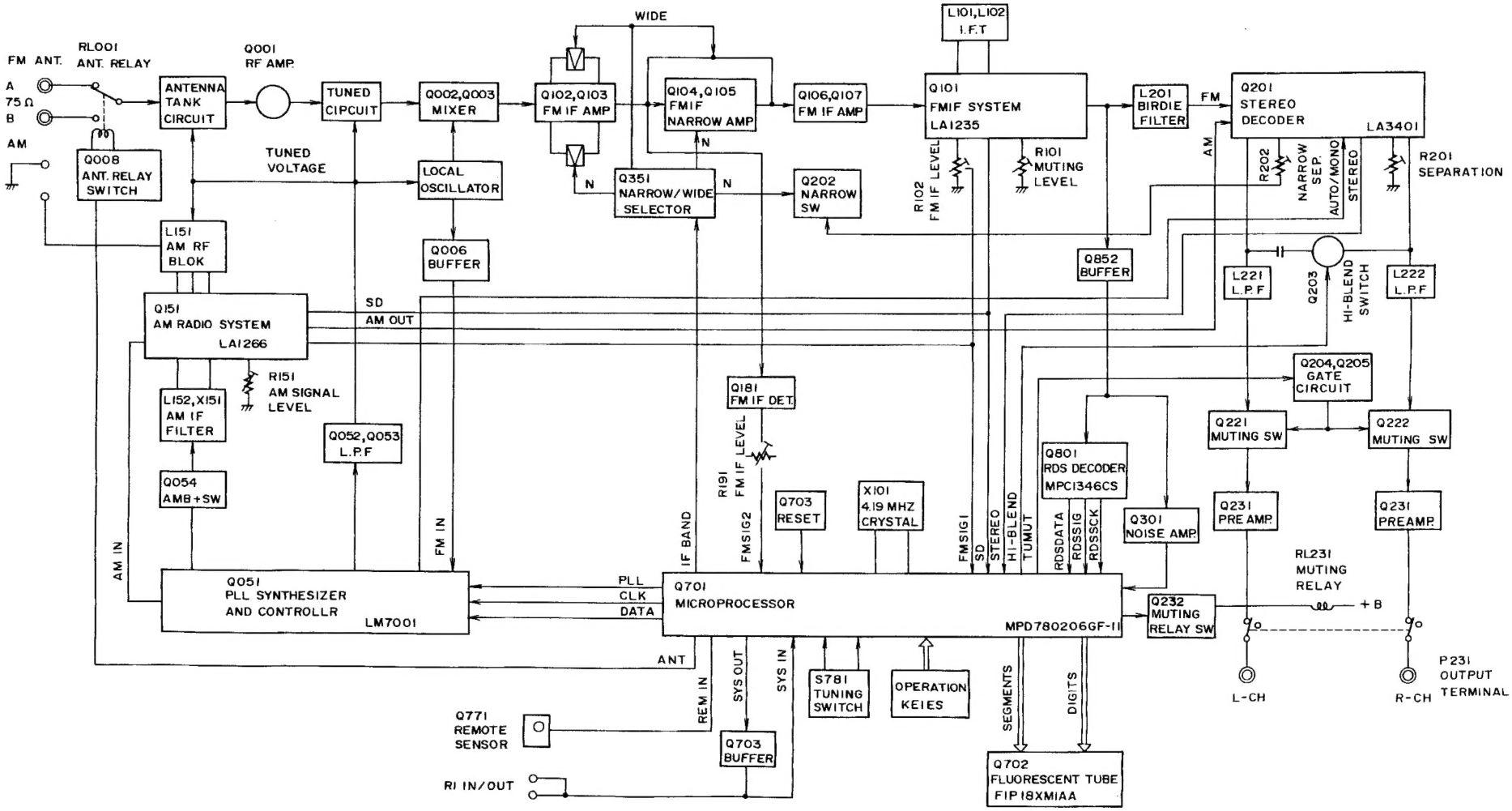
3. Changing the FM/AM band step

(Except European model)

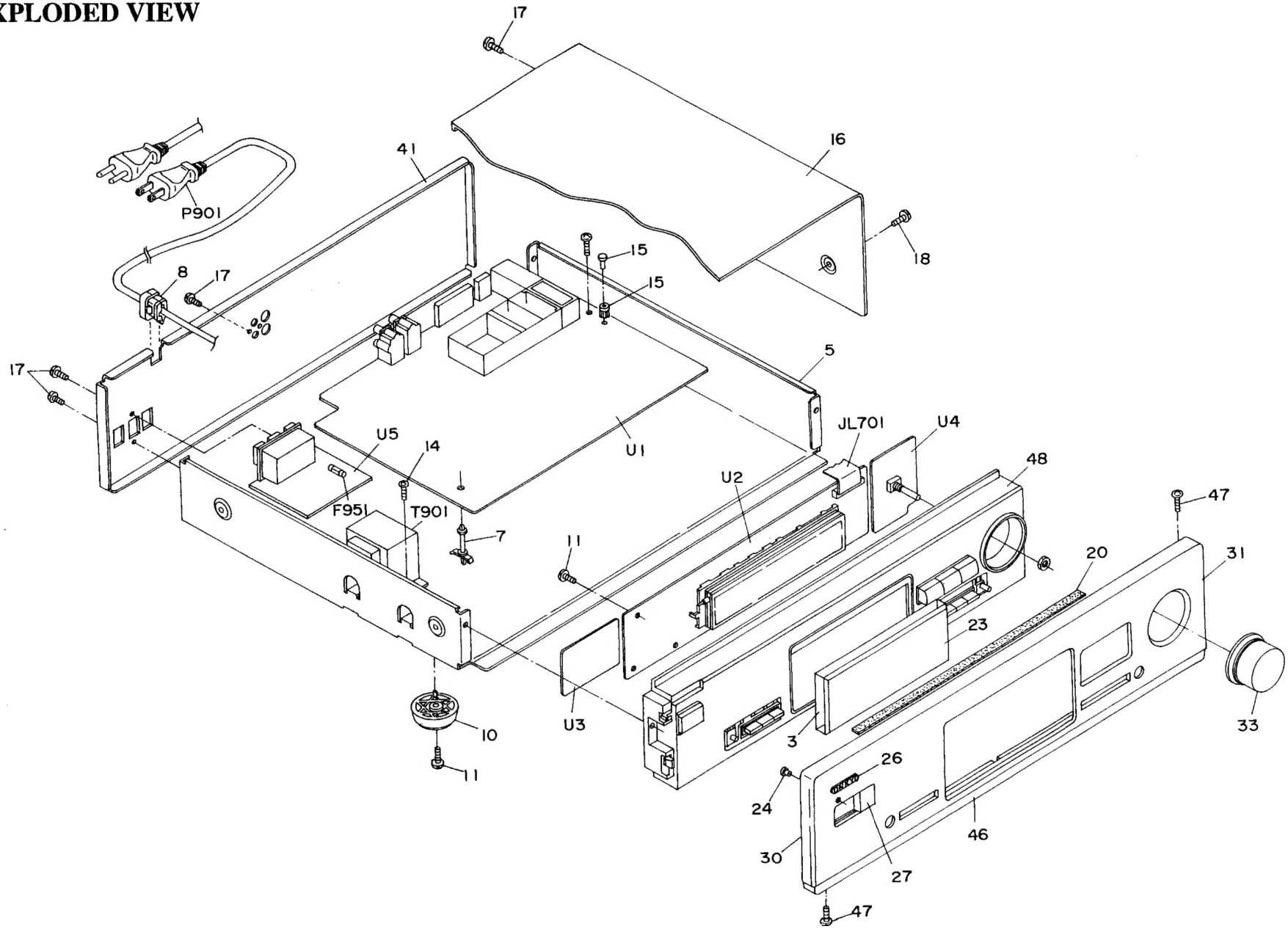
When change the band step, refer the below table.

Band step	R704	R705
Other from USA	2.7k	390
USA from other	5.6k	3.3k

BLOCK DIAGRAM



EXPLODED VIEW



PARTS LIST

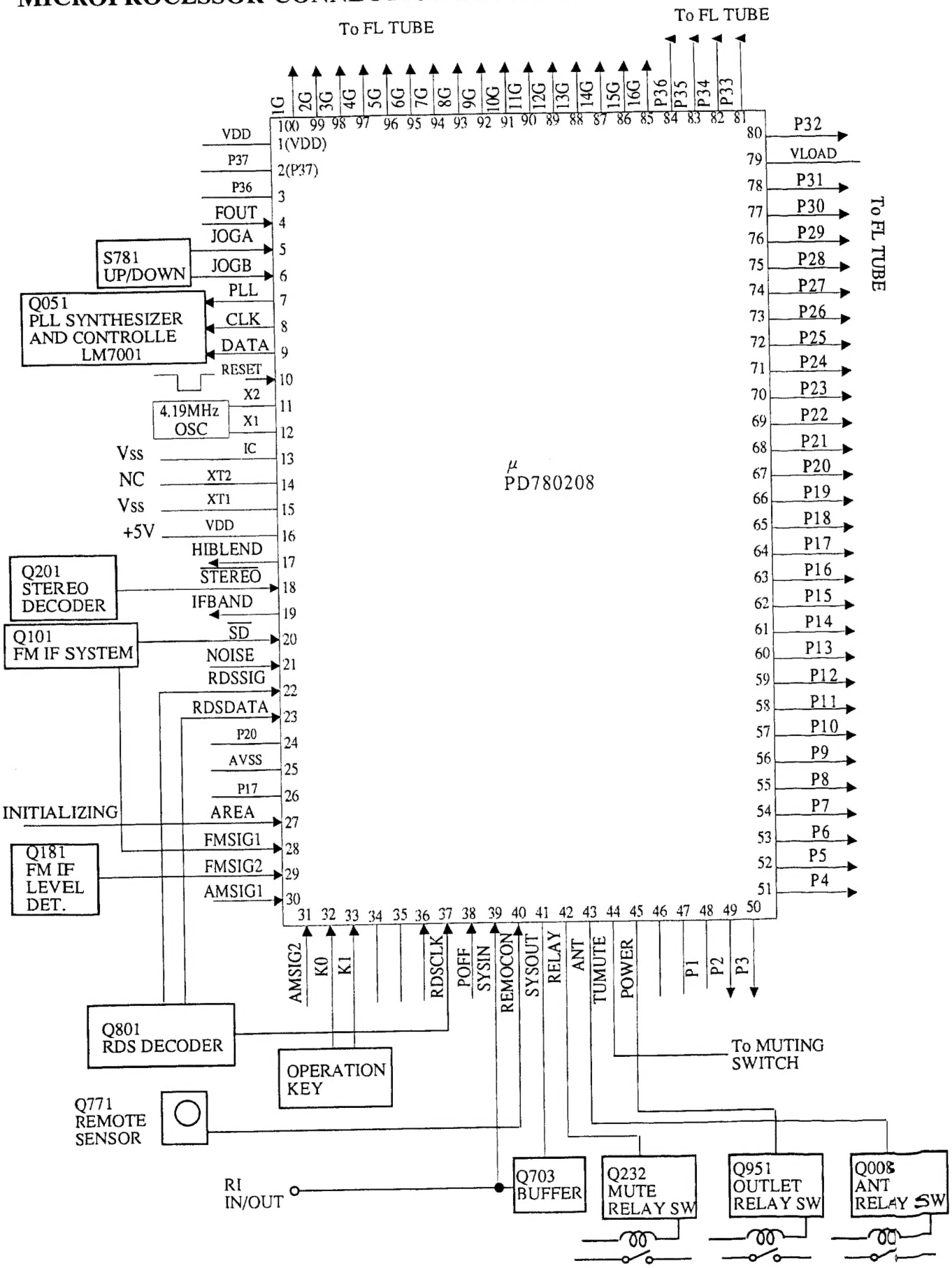
REF.NO.	PART NO.	DESCRIPTION
3	28133349-1	Back plate <B>
	28133345	Back plate <S/G>
5	27100316A	Chassis
7	27190164	KGLS-14S,Holder
8	27300750	⚠ Cord bushing
10	27175311	Leg
11	838130088	3TTB+8B,Self-tappin screw
14	830440069	4TTC+6C(BC),Self-tapping screw
15	880009	NRP-345,Plastic rivet
16	28184642	Top cover <B>
	28184643	Top cover <S>
	28184644	Top cover <G>
17	838430088	3TTB+8B(BC),Self-tapping screw <B>
	838230088	3TTB+8B(Ni),Self-tapping screw <S/G>
18	838440089	4TTC+8B(BC),Self-tapping screw <B>
	838240089	4TTC+8B(Ni),Self-tapping screw <S/G>
20	28140837	Cushion
21	28141333	Cushion for flat cable
23	28191731A	Clear plate
24	28198839	Facet
26	28135243	Badge <B>
	28135242	Badge <S>
27	28191730	Clear plate RE
30	28125327A	End cap L <B>
	28125329A	End cap L <S>
	28125331A	End cap L <G>
31	28125328A	End cap R <B>
	28125330A	End cap R <S>
	28125332A	End cap R <G>
33	28325354	Knob, tuning <B>
	28325355	Knob, tuning <S>
	28325356	Knob, tuning <G>
41	27122180A	Rear panel <D>
	27122181A	Rear panel <P>
	27122182A	Rear panel <W>
46	27211785	Front panel <D/W/T>
	27211788	Front panel <P>
	27211786	Front panel <S>
	27211787	Front panel <G>
47	801525	3TTB+8B(BC),Self-tapping screw <D/P>
48	27110937A	Front bracket <D/W/T>
	27110950A	Front bracket <P>
	27110938A	Front bracket <S>
	27110939A	Front bracket <G>

REF.NO.	PART NO.	DESCRIPTION
91	260208	Wire tie
92	28175224	Isolation plate <P>
93	880011	NRP-355, Plastic rivet <P>
94	25060044	3*14, Terminal GND <P>
95	87643010	W3x10F(BC), Washer <P>
F951	252077	⚠ 4A-SE-EAK, Fuse <P>
JL701	2047302512	NCFC7-302512, Flat cable
P901	253192HIT	⚠ AS-UC-6#18-(SPT-2), AC cord <D>
	253193HIT	⚠ AS-CEE, AC cord <P>
	253198HIT	⚠ AS-BS, AC cord <PB>
	253233KAW	⚠ AS-CEE-2, AC cord <W>
T901	2301193	⚠ NPT-1270D, Power transformer <D>
	2301194	⚠ NPT-1270P, Power transformer <P>
	2301195	⚠ NPT-1270DG, Power transformer <W>
U1	1A685587-1A	NAAR-5787-1A, Main circuit pc board ass'y <P/PB>
	1A685587-1B	NAAR-5787-1B, Main circuit pc board ass'y <T>
	1A685587-1C	NAAR-5787-1C, Main circuit pc board ass'y <W>
	1A685587-1D	NAAR-5787-1D, Main circuit pc board ass'y <D>
U2	1A685588-1A	NADG-5788-1A, Display circuit pc board ass'y <P/B>
	1A685588-1B	NADG-5788-1B, Display circuit pc board ass'y <T>
	1A685588-1C	NADG-5788-1C, Display circuit pc board ass'y <W>
	1A685588-1D	NADG-5788-1D, Display circuit pc board ass'y <D>
U3	1A685589-1A	NAETC-5789-1A, Remote sensor pc board ass'y <P/PB>
	1A685589-1B	NAETC-5789-1B, Remote sensor pc board ass'y <T>
	1A685589-1C	NAETC-5789-1C, Remote sensor pc board ass'y <W>
	1A685589-1D	NAETC-5789-1D, Remote sensor pc board ass'y <D>
U4	1A685590-1A	NASW-5790-1A,Tuning switch pc board ass'y <P/PB>
	1A685590-1B	NASW-5790-1B,Tuning switch pc board ass'y <T>
	1A685590-1C	NASW-5790-1C,Tuning switch pc board ass'y <W>
	1A685590-1D	NASW-5790-1D,Tuning switch pc board ass'y <D>
U5	1A685591-1A	NAPS-5791-1A, Primary circuit pc board ass'y <P/PB>
	1A685591-1B	NAPS-5791-1B, Primary circuit pc board ass'y <T>
	1A685591-1C	NAPS-5791-1C, Primary circuit pc board ass'y <W>
	1A685591-1D	NAPS-5791-1D, Primary circuit pc board ass'y <D>
U6	1A685528-1C	NASW-5828-1C,Voltage selector pc board ass'y <W>

NOTE: <D>: 120V model only
<P>: 230V model only
<PB>: U.K model only
<W>: Wolrdwide model only
<T>:Taiwanease model only
<B>: Black model only
<S>: Silver model only
<G>: Golden model only

NOTE: THE COMPONENTS INENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

MICROPROCESSOR-CONNECTION DIAGRAM



MICROPROCESSOR-TERMINAL DESCRIPTION

Pin No.	Terminal	Description
1	VDD	Power supply terminal (+5V)
2	P37	Not used
3	P36/BUZ	Not used
4	FOUT	Clock output terminal for frequency adjustment
5	JOGA	Jog dial connection terminal
6	JOGB	Jog dial connection terminal
7	PLL	Connect to the terminal PLL of PLL IC LM7001.
8	CLK	Connect to the terminal CL of PLL IC LM7001.
9	DATA	Connect to the terminal DATA of PLL IC LM7001.
10	$\overline{\text{RESET}}$	Reset input terminal
11	X2	Crystal resonator connection terminal
12	X1	Connect the 4.19 MHz crystal resonator.
13	IC	Internal connection terminal
14	XT2	Not used
15	PO4/XT1	Not used
16	VDD	Power supply terminal (+5V)
17	HIBLEND	Hi-blend control output terminal
18	$\overline{\text{STEREO}}$	Stereo broadcast detection input
19	IFBAND	IF band control output terminal
20	$\overline{\text{SD}}$	Station detection input terminal
21	NOISE	Noise detection input terminal
22	RDSSIG	RDS signal input terminal
23	RDSDATA	RDS data input from RDS decoder
24	P20/S11	Not used
25	AVSS	Power supply terminal for A/D converter
26	P17/ANI7	Not used
27	AREA	Initializing input for FM/AM band area
28	FMSIG1	Signal strength detection input
29	FMSIG2	Signal strength detection input
30	AMSIG1	Not used
31	AMSIG2	Not used
32	K0	Operation key connection terminal pin
33	K1	Operation key connection terminal pin
34	AVDD	Power supply terminal for A/D converter
35	AVREF	Reference voltage for A/D converter
36	RDSCLK	RDS clock input terminal for RDS decoder

Pin No.	Terminal	Description
37	POFF	Current stoppage detection input terminal
38	SYSIN	System code input terminal
39	REMOCON	Remote control signal input terminal
40	Vss	Ground terminal
41	$\overline{\text{SYSOUT}}$	System code output terminal
42	RELAY	AC outlet control terminal
43	ANT	Antenna selector output terminal
44	TUMUTE	Muting control output terminal
45	POWER	Power control output terminal
46	VDD	Power supply terminal (+5V)
47	P127/FIP52	Not used
48~78	P1~P31	Segment output terminals
79	-VP	Power supply for FL tube
80~84	P32~P36	Segment output terminals
85~100	16G~1G	Grid output terminals

Initializing

R704	R705	Region	FM	AM
3.3k	5.6k	Europe	87.50-108.00MHz(50k/25k)	522-1611kHz(9k)
10k		Worldwide	87.50-108.00MHz(50k/25k)	531-1602kHz(9k)
5.6k	3.3k	U.S.A	87.9-107.9MHz(200k/25k)	530-1710kHz(10k)

ADJUSTMENT PROCEDURES

Preparation

1. Input

FM mono: 1kHz, 40kHz devi., 60dB/μ V
(European model)
1kHz, 75kHz devi., 60dB/μ V
(Other model)

FM stereo: 1kHz, 36kHz devi., 60dB/μ V
Pilot signal 19kHz 4kHz devi.
(European model)
1kHz, 67.5kHz devi., 60dB/μ V
Pilot signal 19kHz 7.5kHz devi.
(Other model)

AM: 400Hz, 30% mod.

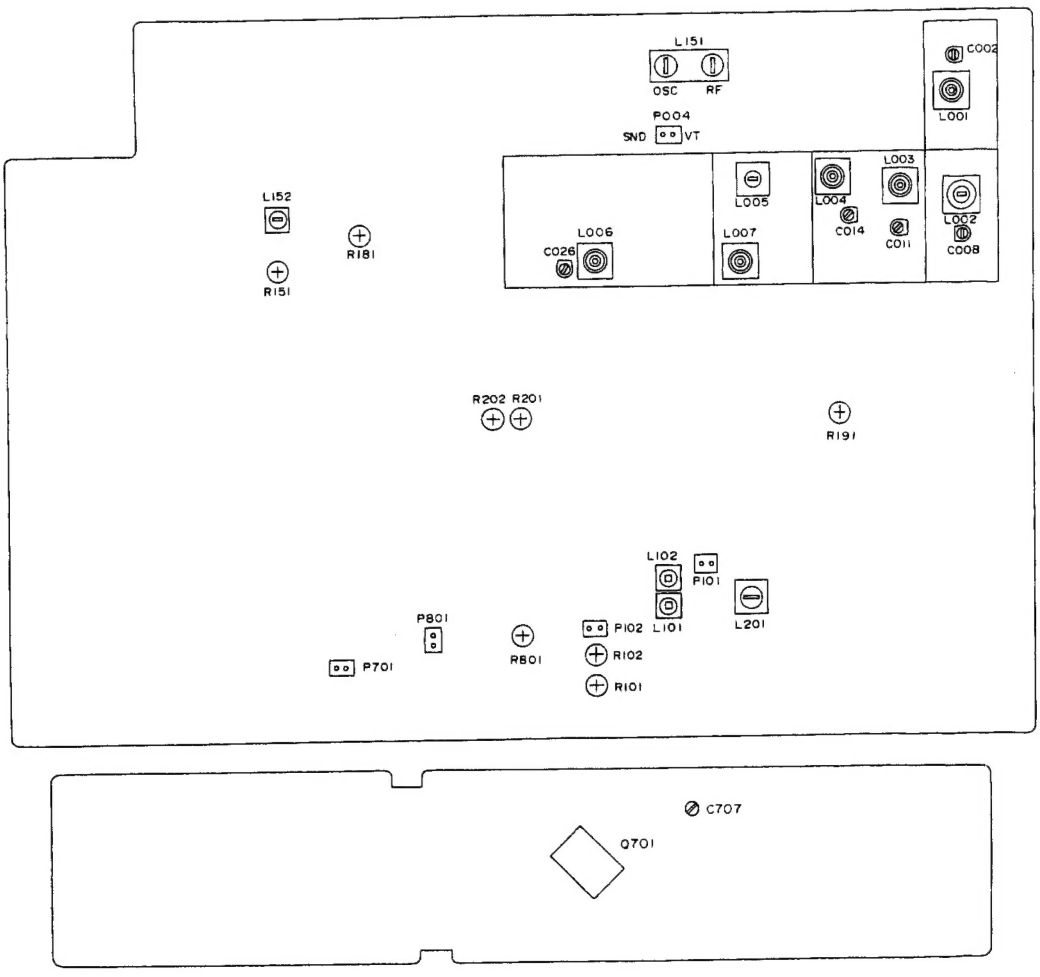
1. Set the operation switches to the below position.
Antenna.....A, IF Band.....Normal, Hi-Blend.....Off, Mode.....Auto, Fine.....Light on

2.Hold down MEMORY key and press the STAND-BY/ON key before FM adjustment to be the unit to the test mode.

CLOCK FREQUENCY ADJUSTMENT

Connect the frequency counter to test terminal P701.

Adjust trimmer capacitor C707 so that the reading of frequency counter becomes 524,288 ± 1Hz.



FM ADJUSTMENT

230V and Worldwide models

	Item	Step	Connection of instrument	FM SG output	Stereo Modulator output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
1	Tuned Voltage	1	Connect the DC voltmeter to the test point P004.			87.50 MHz (1 ch.)	DC voltmeter	L006	6.5±0.2 V	(1 ch.): Channel of PRESET key
		2				108.00 MHz (5 ch.)		C026	24.0±0.4 V	Repeat the steps 2 and 3 until
		3				87.50 MHz		L006	4.0±0.2 V	no further adjustment is necessary.
2	Tracking Adjust.	1	Connect the FM signal generator to Antenna terminal A.	108.00 MHz 20 dB μ		108.00 MHz	DC voltmeter	C002,C008 C011,C014	Maximum	Repeat the steps 1 and 2 until no further adjustment is necessary.
		2		87.50 MHz 20 dB μ		87.50 MHz		L001,L002 L003,L004	Maximum	
		3	Connect the DC voltmeter to the test point P102.	108.00 MHz 20 dB μ		100.80 MHz		L005 L007	Maximum	
3	Signal Meter	1	Connect the FM signal generator to Antenna terminal A. (No modulation)	99.00 MHz 50 dB μ		99.00 MHz (3 ch.)	Signal Meter	R102	50 dB	Press the DISPLAY key more than 1 sec. (Signal meter indication) After adjustment, press the DISPLAY key (Frequency indication)
		2		99.00 MHz 99 dB μ				R191	99 dB	
4	FM IF	1	Connect the DC voltmeter to test point P101 and the distortion analyzer to output terminal.	99.00 MHz 60 dB μ		99.00 MHz (3 ch.)	DC voltmeter	L101	0±5 mV	Repeat the steps 1 and 2 until no further adjustment is necessary.
		2					Distortion analyzer	L102	Minimum	
5	Muting level		Connect the oscilloscope to the output terminal.	99.00 MHz 18 dB μ 22.5 kHz devi.		99.00 MHz	Oscilloscope	R101	Appear the signal on the oscilloscope.	
6	Stereo Sepa-ration		Connect the oscilloscope to the output terminal.	99.00 MHz 60 dB μ Ext. mode	40kHz devi. Pilot signal 4kHz devi.	99.00 MHz	Oscilloscope	R201	Maximum Separatin	IF BAND: NORMAL
								R202	Maximum Separation	IF BAND:NARROW
7	RDS		Connect the oscilloscope to the test point P801.	99.00 MHz 60 dB μ Ext. mode	57 kHz 3% devi. or RDS data signal	99.00 MHz	Oscilloscope	R801	Maximum	

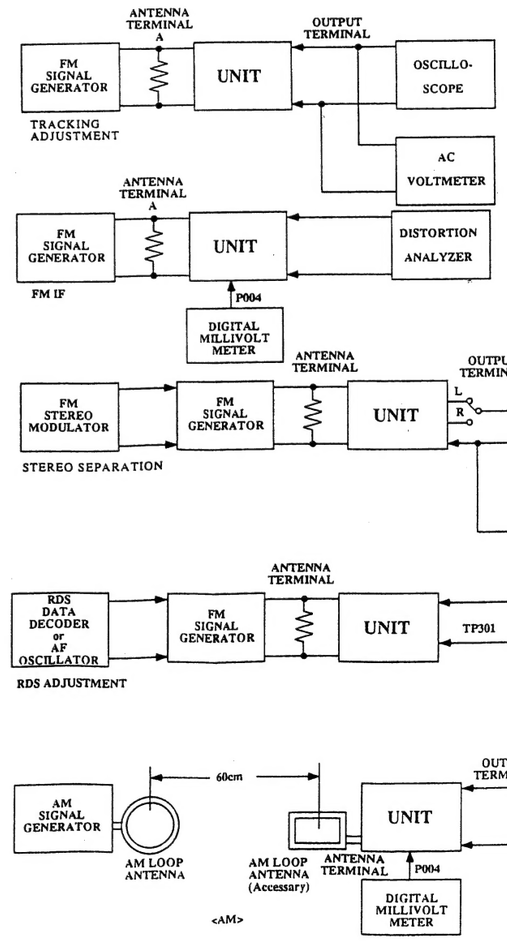
120V models

	Item	Step	Connection of instrument	FM SG output	Stereo Modulator output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
1	Tuned Voltage	1	Connect the DC voltmeter to the test point P004.			87.90 MHz (1 ch.)	DC voltmeter	L006	6.5±0.2 V	(1 ch.): Channel of PRESET key
		2				107.90 MHz (5 ch.)		C026	24.0±0.4 V	Repeat the steps 2 and 3 until
		3				87.90 MHz		L006	4.0±0.2 V	no further adjustment is necessary.
2	Tracking Adjust.	1	Connect the FM signal generator to Antenna terminal A.	107.9 MHz 20 dB μ		107.90 MHz	DC voltmeter	C002,C008 C011,C014	Maximum	Repeat the steps 1 and 2 until no further adjustment is necessary.
		2		87.9 MHz 20 dB μ		87.90 MHz		L001,L002 L003,L004	Maximum	
		3	Connect the DC voltmeter to the test point P102.	107.90 MHz 20 dB μ		107.90 MHz		L005 L007	Maximum	
3	Signal Meter	1	Connect the FM signal generator to Antenna terminal A. (No modulation)	99.10 MHz 50 dB μ		99.10 MHz (3 ch.)	Signal Meter	R102	50 dB	Press the DISPLAY key more than 1 sec. (Signal meter indication) After adjustment, press the DISPLAY key (Frequency indication)
		2		99.10 MHz 99 dB μ				R191	99 dB	
4	FM IF	1	Connect the DC voltmeter to test point P101 and the distortion analyzer to output terminal.	99.10 MHz 60 dB μ		99.10 MHz (3 ch.)	DC voltmeter	L101	0±5 mV	Repeat the steps 1 and 2 until no further adjustment is necessary.
		2					Distortion analyzer	L102	Minimum	
5	Muting level		Connect the oscilloscope to the output terminal.	99.10 MHz 18 dB μ 22.5 kHz devi.		99.10 MHz	Oscilloscope	R101	Appear the signal on the oscilloscope.	
6	Stereo Sepa-ration		Connect the oscilloscope to the output terminal.	99.10 MHz 60 dB μ Ext. mode	75kHz devi. Pilot signal 7.5kHz devi.	99.10 MHz	Oscilloscope	R201	Maximum Separatin	IF BAND: NORMAL
								R202	Maximum Separation	IF BAND:NARROW
7	RDS		Connect the oscilloscope to the test point P801.	99.10 MHz 60 dB μ Ext. mode	57 kHz 3% devi. or RDS data signal	99.10 MHz	Oscilloscope	R801	Maximum	

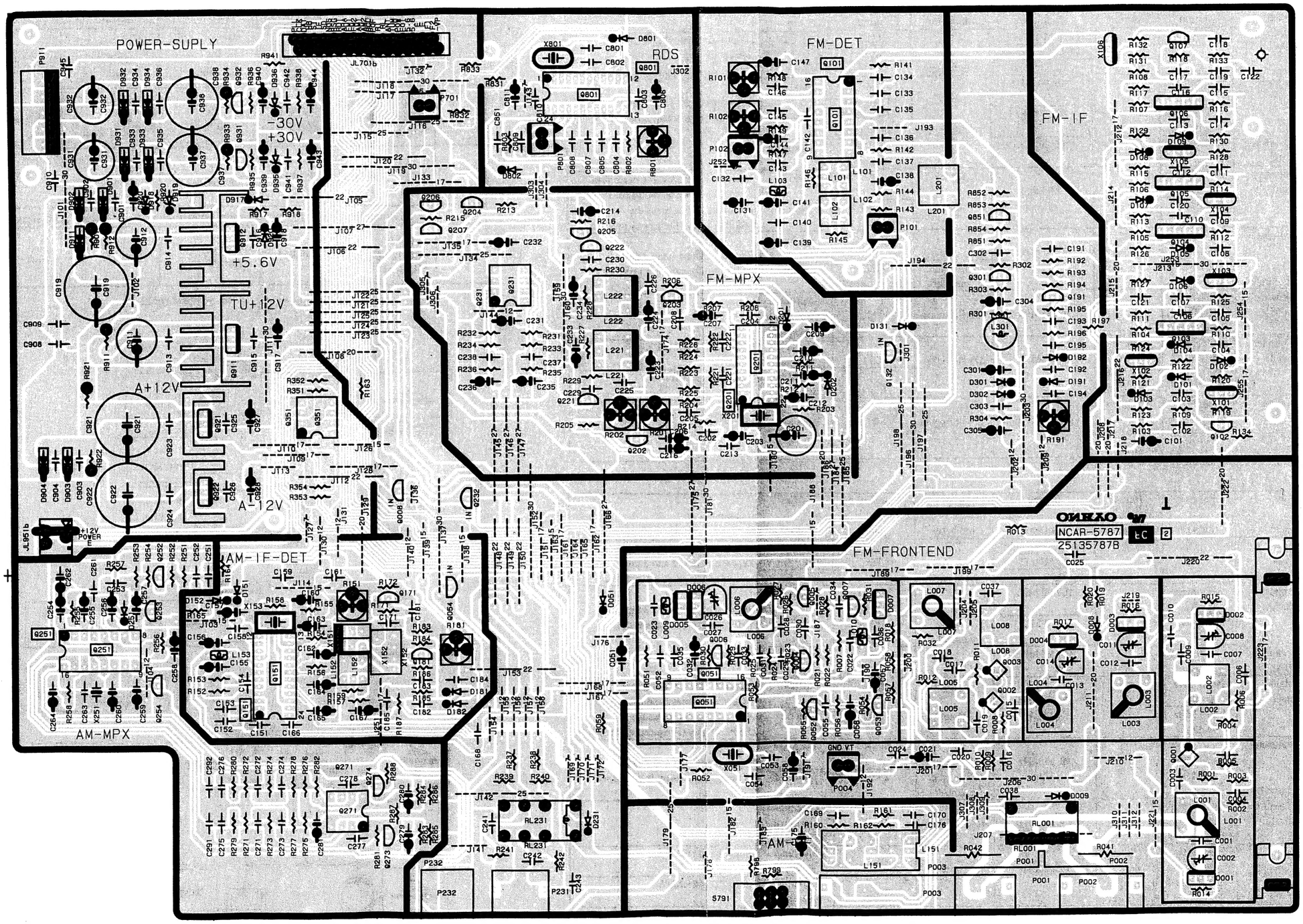
AM ADJUSTMENT

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz <530kHz> (531kHz)	Digital DC voltmeter	OSC coil on RF block L151	2.4±0.1V
2	603kHz<600kHz> 400Hz 30% mod. 60dB/m	603kHz <600kHz>	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum
4	Hold down the DISPLAY button more than 1 second to display "AM Signal'.				
5	990kHz 400Hz no mod. 60dB/m	990kHz	Signal Indicator	R151	60 dB

( ): Worldwide model < >:120V model

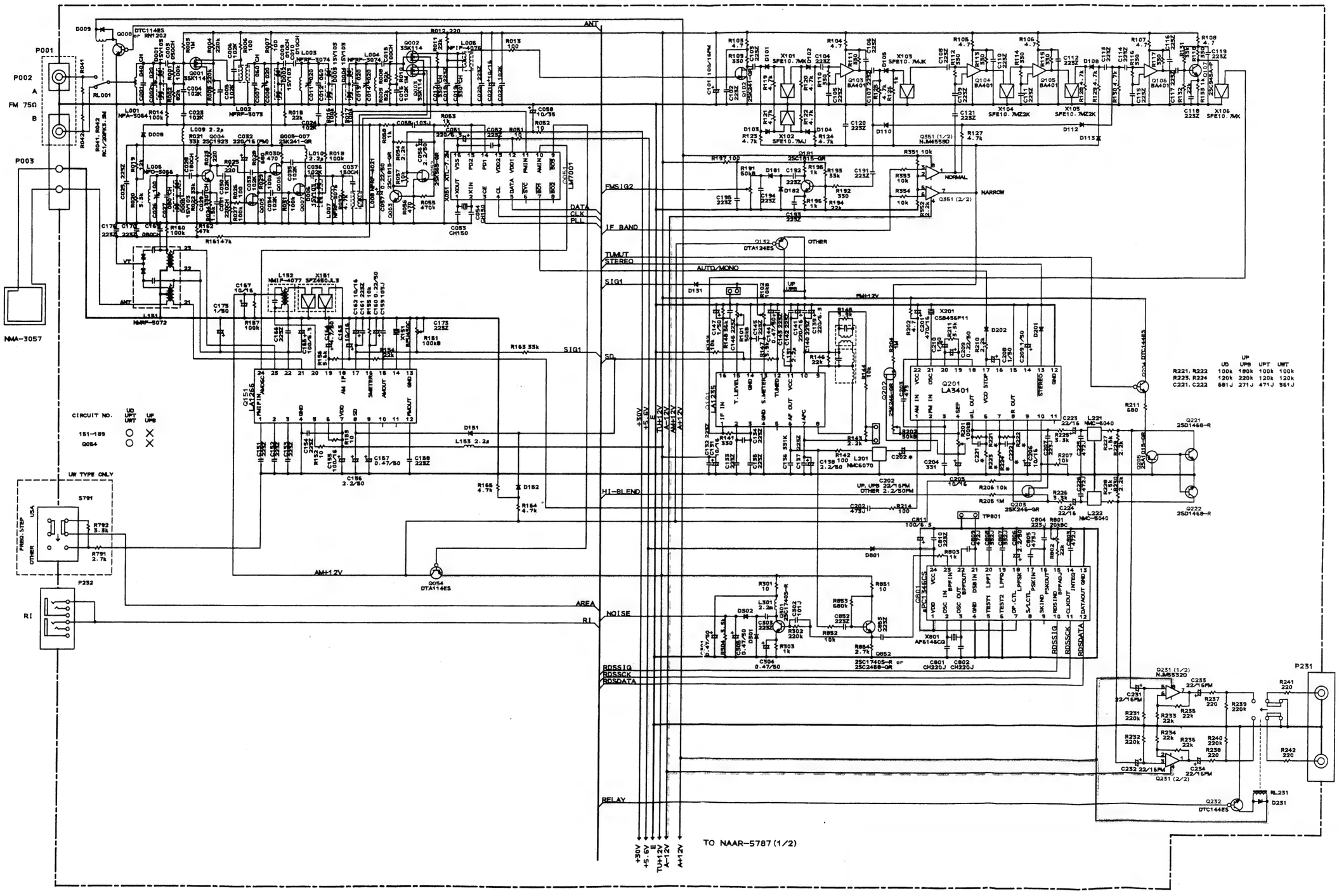


PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

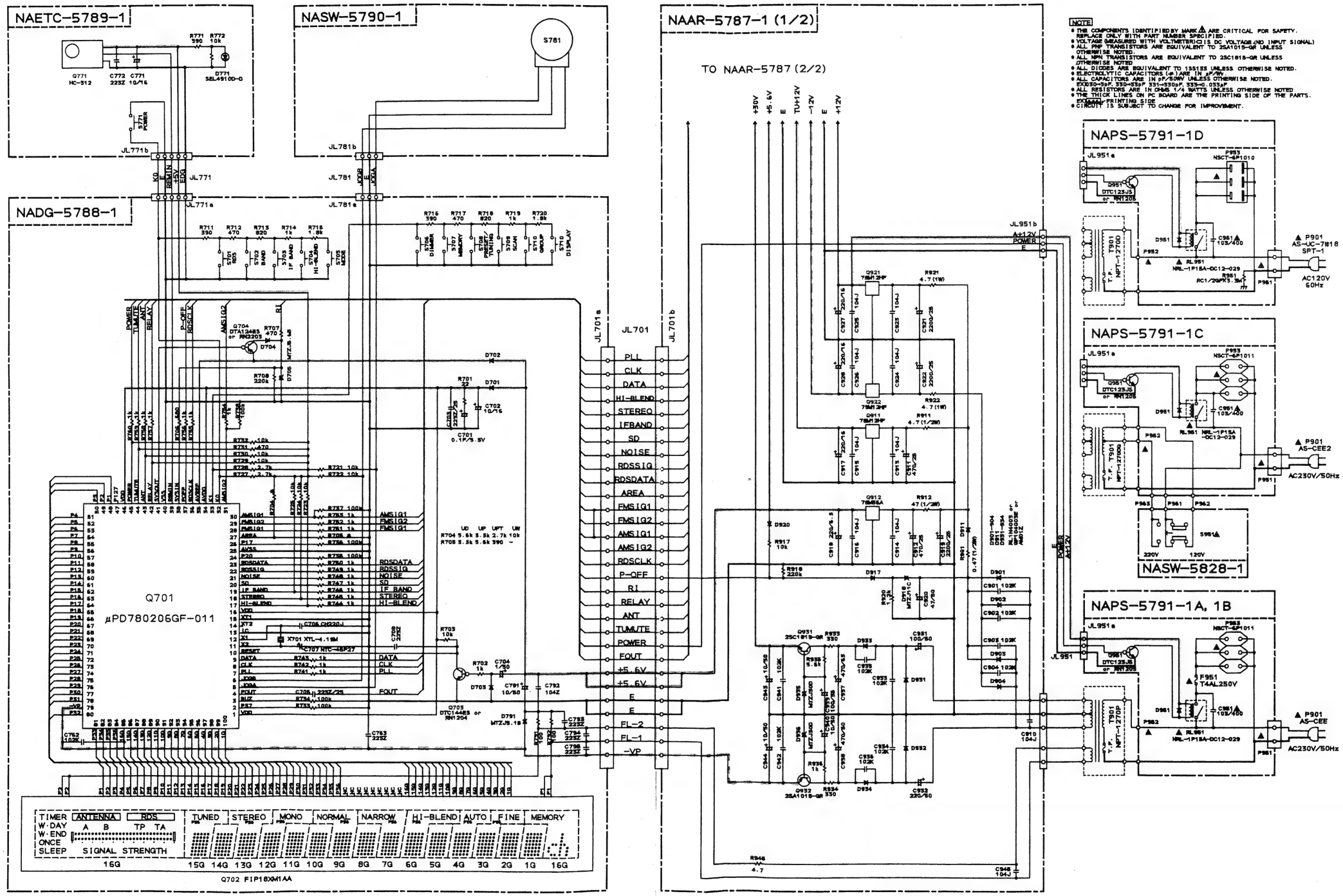


MAIN CIRCUIT PC BOARD

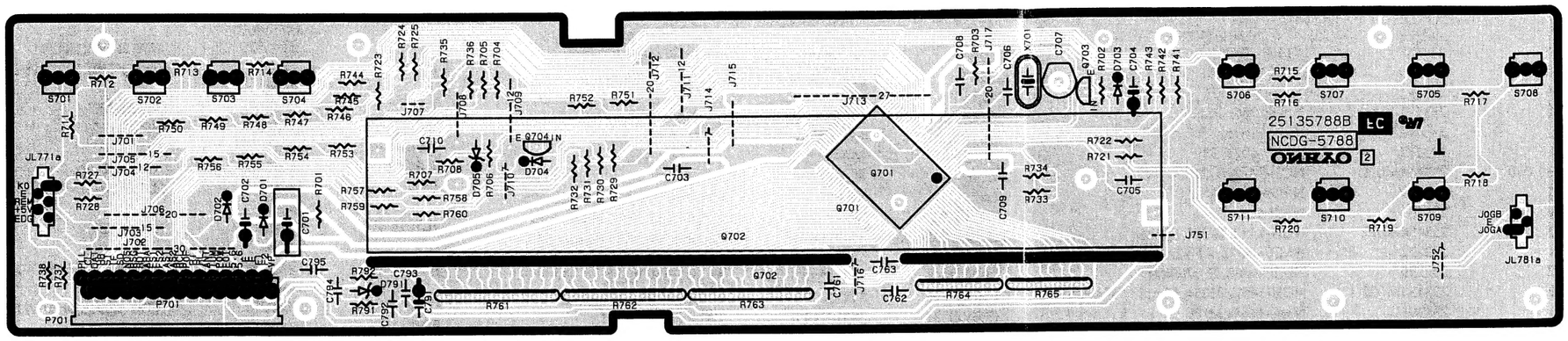
SCHEMATIC DIAGRAM PART -1



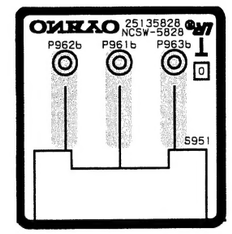
SCHEMATIC DIAGRAM PART-2



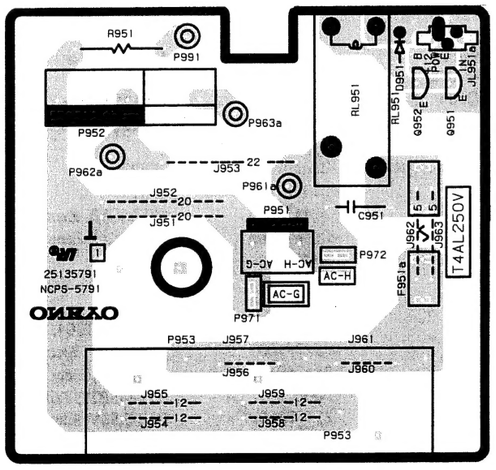
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



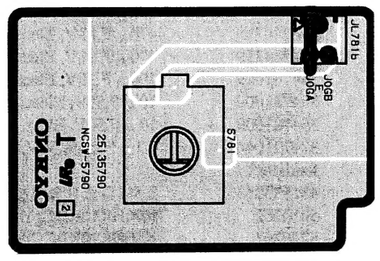
DISPLAY CIRCUIT PC BOARD



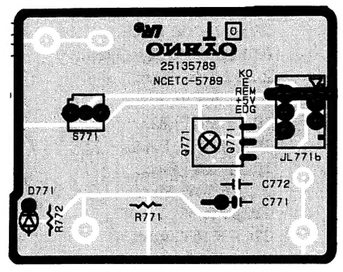
VOLTAGE SELECTOR SWITCH PC BOARD



PRIMARY CIRCUIT PC BOARD



TUNING SWITCH PC BOARD



REMOTE SENSOR PC BOARD

PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-5787-1A/1B/1C/1D)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q051	22240090	LM7001
Q101	222680	LA1235
Q103~Q106	22240821	BA401
Q151	22240039	LA1266 <D/W/T>
Q201	22240252	LA3401
Q231	222902	NJM5532D-D
Q351	222465	NJM4558D
Q801	22240679	μPC1346CS
Q911	222780125NEC	μPC78M12AHF
Q912	222780565JRC	NJM78M56FA
Q921	222780125NEC	μPC78M12AHF
Q922	222790125NEC	79M12HF
	Transistors	
Q001~Q003	2212514	3SK114-Y
Q004	2211723	2SC1923-O
Q005~Q007	2212195	2SK241-GR
Q008	2213290 or	DTC114ES or
	2214230	RN1202
Q052	2212445	2SK365-GR
Q053,Q191	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q054	2213510 or	DTA114ES or
	2214350	RN2202 <D/W/T>
Q102	2212195	2SK241-GR
Q107	2210746	2SC945A-P
Q132	2212600 or	DTA124ES or
	2214350	RN2202 <D/W/T>
Q202,Q203	2211945	2SK246-GR
Q204,Q206	221282 or	DTC144ES or
	2213560	RN1204
Q205	2213354 or	2SA933S-R or
	2212125	2SA1048-GR
Q207	2213510 or	DTA114ES or
	2214350	RN2202
Q221,Q222	2212794	2SD1468-R
Q232	2213290 or	DTC114ES or
	2214230	RN1202
Q301,Q851	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q931	2211255	2SC1815-GR
Q932	2211455	2SA1015-GR
	Diodes	
D001~D007	223154	1SV103
D008,D009	223205 or	1SS270A or
D051	223163	1SS133
D101~D109	223205 or	1SS270A or
D191,D192	223163	1SS133
D201,D202	223205 or	1SS270A or
D231	223163	1SS133
D301,D302	223205 or	1SS270A or
D801	223163	1SS133
D901~D904	22380260,	RL1N4003,
D911	22380035 or	GP104003E or
D931~D934	22380046	AM01Z
D917,D920	223205 or	1SS270A or
	223163	1SS133
D918	224471103	MTZJ11C, Zener
D935,D936	224473004	MTZJ30D, Zener
D131,D151	223205 or	1SS270A or
D152	223163	1SS133 <D/W/T>

CIRCUIT NO.	PART NO.	DESCRIPTION
L001	**Coils and Transformers**	
L002	233487	NFA-3064, Antenna
L003,L004	233488	NFRF-3073, RF
L005	233489	NFRF-3074, RF
L006	233441	NFIF-4076, IF
L007	233491	NFO-3066, OSC
L008	233492A	NFRF-3076, RF
L009,L010	233212	NFRF-4021, RF
L101	233454M022	NCH-1452, 022M, Chock
L102	233459	NFIF-4083, IF
L103	233460	NFIF-4084, IF
L151	233454M022	NCH-1452, 022M, Chock
L152	232172	NMRF-5072, RF <D/W/T>
L153	232139	NMIF-4062, IF <D/W/T>
L201	233454M022	NCH-1452, 022M, Chock <D/W/T>
L221,L222	233383	NMC-6070, MPX
L222	233294	NMC-5040, MPX
L301	233294	NMC-5040, MPX
	231081	NCH-2129, Chock
X051	**Resonators**	
X201	3010141	XTL-7.2M, Crystal
X801	3010152	CSB456F11, Ceramic
	3010203	AF6146CG, Crystal
X101	**Ceramic filters**	
X102,X103	3010041	SFE10.7MX-A
X104,X105	3010132	SFE10.7MJK-A
X106	3010130	SFE10.7MZ2K-A
X151	3010041	SFE10.7MX-A, CERA FIL
X153	3010123	SFZ-450JL, CERA FIL <D/W/T>
	3010076	BFU-450C, CERA FIL <D/W/T>
C002,C008	**Capacitors**	
C011,C014	3060020	NTC-2P17, Trimmer
C021	3060020	NTC-2P17, Trimmer
C026	354741009	10 μF,16V, Elect.
C032	3060017	NTC-10P15, Timmer
C051	393142217	220 μF,16V, Elect.
C055	354722219	220 μF,6.3V, Elect.
C056	374721034	0.01 μF±5%,50V, Plastic
C057	354780229	2.2 μF,50V, Elect.
C058	354782299	0.22 μF,50V, Elect.
C101	354761009	10 μF,35V, Elect.
C131	393141017	100 μF,16V, Elect.
C138	354741009	10 μF,16V, Elect.
C139	354780229	2.2 μF,50V, Elect.
C141	354722219	220 μF,6.3V, Elect.
C144	393142217	220 μF,16V, Elect.
C147	354784799	0.47 μF,50V, Elect.
C155	354780109	1 μF,50V, Elect.
C156	393141017	100 μF,16V, Elect. <D/W/T>
C157	354780229	2.2 μF,50V, Elect. <D/W/T>
C159	354784799	0.47 μF,50V, Elect. <D/W/T>
C160	374721034	0.01 μF±5%,50V, Plastic <D/W/T>
C162,C163	354782299	0.22 μF,50V, Elect. <D/W/T>
C164	354741009	10 μF,16V, Elect. <D/W/T>
C165	354780479	4.7 μF,50V, Elect. <D/W/T>
C167	354721019	100 μF,6.3V, Elect. <D/W/T>
C175	354741009	10 μF,16V, Elect. <D/W/T>
C201	354780109	1 μF,50V, Elect. <D/W/T>
C202	393144717	470 μF,16V, Elect.
C203	374724734	0.047 μF±5%,50V, Plastic <D/W/T>
C203	393142207	22 μF,16V, Elect. <P>
	393180227	2.2 μF,50V, Elect. <D/W/T>

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C204	374724734	0.047 μF±5%,50V, Plastic
C205	374723315	330pF±10%,50V, Plastic
C207	354741009	10 μF,16V, Elect.
C208	374722234	0.022 μF±5%,50V, Plastic
C209,C210	354780109	1 μF,50V, Elect.
C211	354782299	0.22 μF,50V, Elect.
C212	354780109	1 μF,50V, Elect.
C216	393141007	10 μF,16V, Elect.
C221,C222	374722715	270pF±10%,50V, Plastic <P>
C221,C222	374724714	470pF±5%,50V, Plastic <T>
C221,C222	374725614	560pF±5%,50V, Plastic <W>
C221,C222	374726814	680pF±5%,50V, Plastic <D>
C223,C224	393142207	22 μF,16V, Elect.
C225,C226	374724724	4700pF±5%,50V, Plastic
C231,C232	393141017	100 μF,16V, Elect.
C233~C236	393142207	22 μF,16V, Elect.
C301	354741009	10 μF,16V, Elect.
C304,C305	354784799	0.47 μF,50V, Elect.
C803,C809	374724724	4700pF±5%,50V, Plastic
C804	374722234	0.022 μF±5%,50V, Plastic
C805	374724734	0.047 μF±5%,50V, Plastic
C806	354780229	2.2 μF,50V, Elect.
C807,C808	374723324	3300pF±5%,50V, Plastic
C910	374721044	0.1 μF±5%,50V, Plastic
C911,C912	393154717	470 μF,25V, Elect.
C913~C916	374721044	0.1 μF±5%,50V, Plastic
C917	393142217	220 μF,16V, Elect.
C918	393122217	220 μF,6.3V, Elect.
C919	393152227	2200 μF,25V, Elect.
C920	354784709	47 μF,50V, Elect.
C921,C922	393152227	2200 μF,25V, Elect.
C923~C926	374721044	0.1 μF±5%,50V, Plastic
C927,C928	393142217	220 μF,16V, Elect.
C931	354781019	100 μF,50V, Elect.
C932	354782219	220 μF,50V, Elect.
C937	354774719	470 μF,63V, Elect.
C938	354784719	470 μF,50V, Elect.
C939	354761019	100 μF,35V, Elect.
C940,C943	354781009	10 μF,50V, Elect.
C944	354781009	10 μF,50V, Elect.
C945	374721044	0.1 μF±5%,50V, Plastic
	Resistors	
R041,R042	431533355	3.3MΩ±10%, 1/2W,Solid <D>
R101,R102	5210262	N06HR10KBC, Trimming
R151,R801	5210263	N06HR20KBC, Trimming <D/W/T>
R191,R202	5210265	N06HR50KBC, Trimming
R201	5210266	N06HR100KBC, Trimming
R901	453534794	0.47Ω±5%, 1/2W,Metal
R911	453530474	4.7Ω±5%, 1/2W,Metal
R912	443524704	47Ω±5%, 1/2W,Metal oxide film
R921,R922	453630474	4.7Ω±5%, 1W,Metal
	Realies	
RL001	25065356	NRL-1P0.1A-DC12-050, RELAY
RL231	25065469	NRL-2P1A-DC12-078, RELAY
	Shield case	
	27150357	Front end,center
	27301031-1	Front end
	27301033-1	Front end
	Screws	
Q911b,Q912b	82143006	3P+6FN(BC), Pan head
Q921b,Q922b	82143006	3P+6FN(BC), Pan head

CIRCUIT NO.	PART NO.	DESCRIPTION
	Terminals	
P232	25045330	NPJ-2PDBL184, RI
P231	25045341	NPJ-2PDBL192, Output
	Plugs	
P004	25055038	NPLG-2P29
P101,P102	25055038	NPLG-2P29
P701,P801	25055038	NPLG-2P29
JL951b	25055624	NPLG-3P586
P911	25055168	NPLG-5P152
	Socket	
JL701b	25050862	NSCT-30P657
	Switch	
S791	25065286	NSS-22112, Slide <W>
	Antenna terminals	
P002	25060231	NTM-1PD153 <D/W/T>
P001	25060202	NTM-2PD124 <P>
P003	25060117	NTM-2PDML051 <D/W/T>
	Radiators	
Q911a,Q912a	27160179	RAD-57
Q921a,Q922a	27160220-1	RAD51(B)

DISPLAY CIRCUIT PC BOARD (NADG-5788-1A/1B/1C/1D)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q701	22241021	MPD780206GF-011
	Fluorescent tube	
Q702	212152	FIP18XM1AA
	Transistors	
Q703	221282 or	DTC144ES or
Q703or	2213560	RN1204
Q704	2212600 or	DTA124ES or
Q704or	2213580	RN2203
	Diodes	
D701~D704	223205 or	1SS270A or
	223163	1SS133
D705	224470562	MTZJ5.6B, Zener
D791	224471203	MTZJ12C, Zener
	Resonator	
X701	3010224	XTL-4.19M, Crystal
	Capacitors	
C701	3000076	EECS5R5T104, Super
C702	354741009	10 μF,16V, Elect.
C704	354780109	1 μF,50V, Elect.
C707	3060031	NTC-45P27, Trimmer
C791	354781009	10 μF,50V, Elect.
	Resistors	
R764	49163103408	10K*8, 1/10W, Network
R765	49163103408	10K*8, 1/10W, Network
	Switches	
S701	25035652	NPS-111-S604 <D/W/T>
S702~S711	25035652	NPS-111-S604
	Sockets	
JL701a	25050894	NSCT-30P689
JL771a	25051089	NSCT-5P876
JL781a	25051087	NSCT-3P874
	Holder	
Q702a	27190981	FL tube

REMOTE SENSOR PC BOARD (NAETC-5789-1A/1B/1C/1D)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q771	241302	PIC-12043TH2, Remote sensor
D771	225291D	SEL4910D-D, LED
C771	354741009	10 μ F,16V, Elect. capacitor
S771	25035652	NPS-111-S604, Push switch
JL771b	25055626	NPLG-5P588, Plug

TUNING SWITCH PC BOARD (NASW-5790-1A/1B/1C/1D)

CIRCUIT NO.	PART NO.	DESCRIPTION
S781	25065518	RE161PVB25F, Rotary encoder
JL781b	25055624	NPLG-3P586, Plug

VOLTAGE SELECTOR SWITCH PC BOARD (NAPS-5828-1C)

CIRCUIT NO.	PART NO.		DESCRIPTION
S951	25065437	!	NSS-22157P, Slide switch <W>

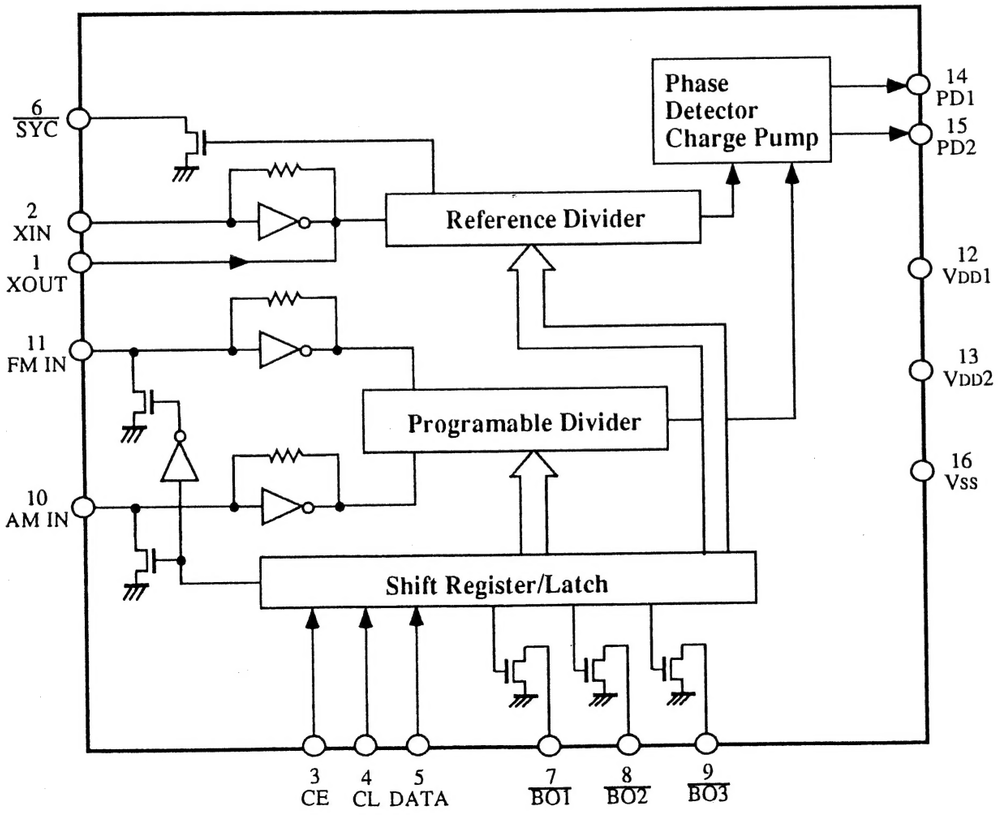
PRIMARY CIRCUIT PC BOARD (NAPS-5791-1A/1B/1C/1D)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q951	2213640 or	DTC123JS or
	2214660	RN1205, Transistor
D951	223205 or	1SS270A or
	223163	1SS133, Diode
C951	3500191	⚠ DE7150F103M, IS capacitor
RL951	25065248	⚠ NRL-1P15A-DC12-29, Relay
F951a	25050065	⚠ YSH403T, Fuse holder <P/T>
JL951a	25051087	NSCT-3P874, Socket
P951	25055675	⚠ NPLG-2P631, Plug
P952	25055167	⚠ NPLG-4P151, Plug <P/D/T>
P952	25055170	⚠ NPLG-7P154, Plug <W>
P953	25051221	⚠ NSCT-6P1011, AC outlet <P/T>
P953	25051220	⚠ NSCT-6P1010, AC outlet <D/W>
R951	431533355	⚠ 3.3M Ω ±10%, 1/2W,Solid resistor <D>

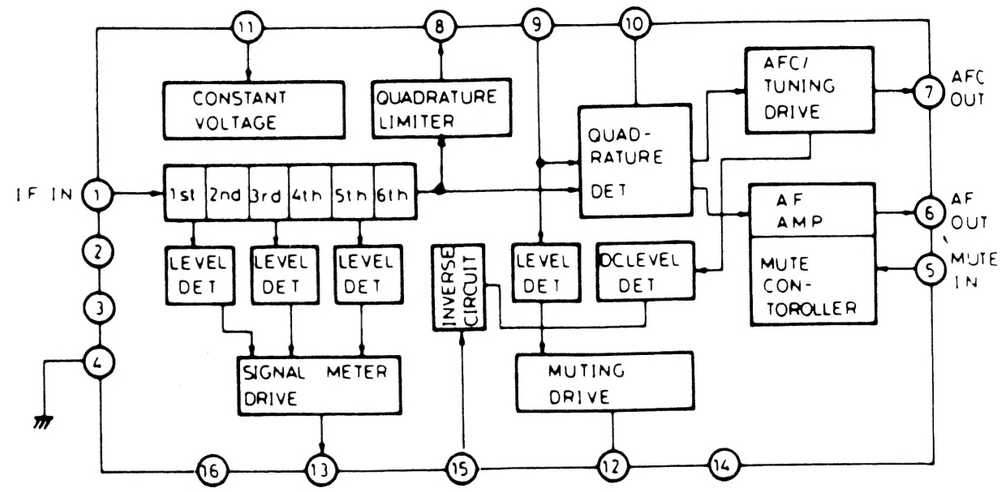
NOTE: THE COMPONENTS INENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

IC BLOCK DIAGRAMS AND DESCRIPTIONS

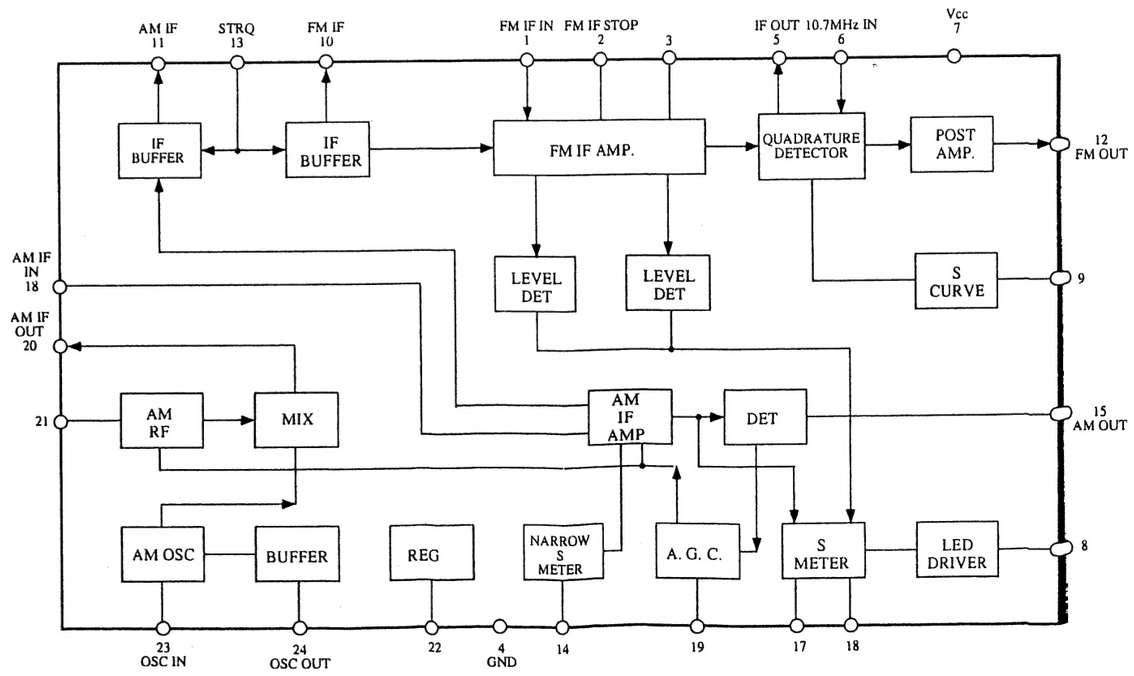
LM7001(PLL SYNTHESIZER AND CONTROLLER)



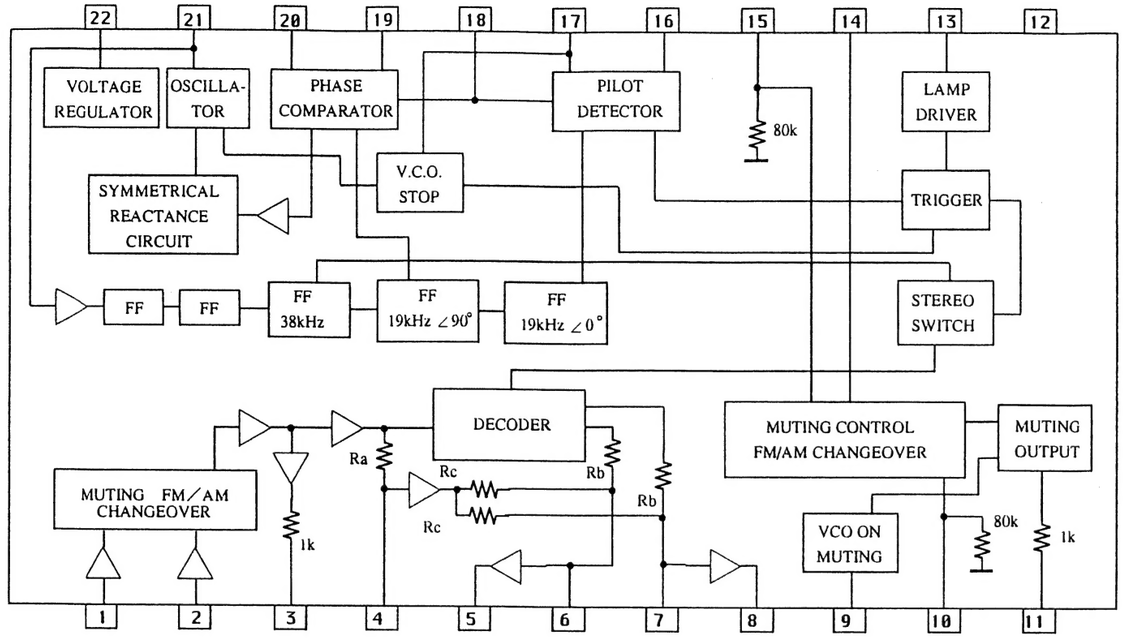
LA1235(FM IF AND AM RADIO SYSTEM)



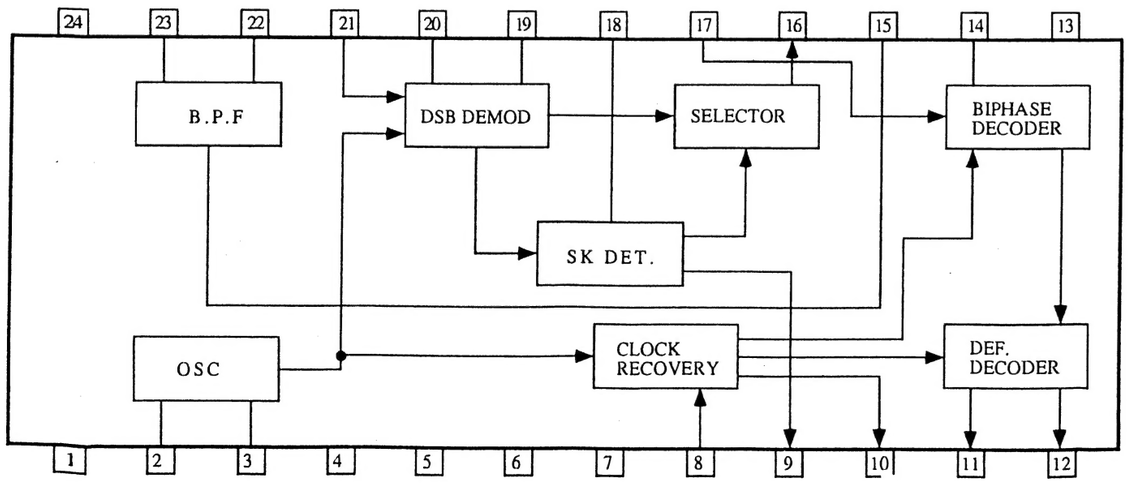
LA1266(FM IF AND AM RADIO SYSTEM)



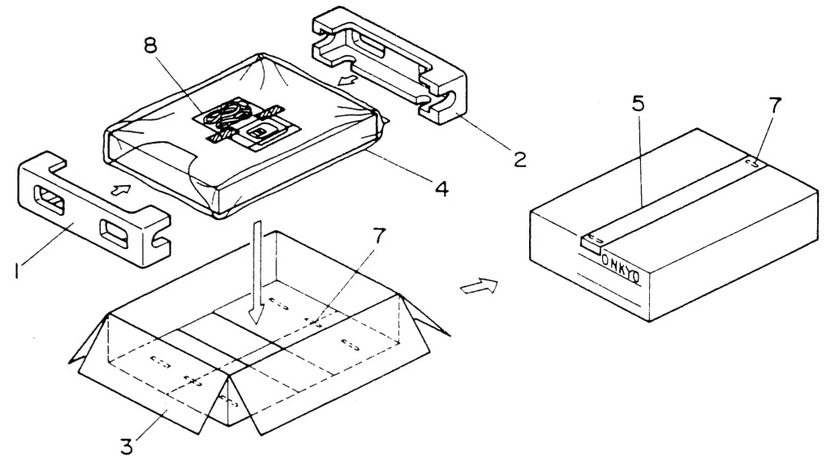
LA3401(FM STEREO DECODER)



µPC 1346CS(RDS DECODER)



PACKIG VIEW



REF.NO.	PART NO.	DESCRIPTION
1	29091734	Pad L
2	29091735	Pad R
3	29053020	Carton box <D/W/T>
3	29053021	Carton box <S>
3	29053022	Carton box <G>
3	29053066	Carton box <P>
4	29100097-1AY	Poly bag
5	29110071	PP tape
7	282301	Staples
8	Accessary bag ass'y	
	292112	FM antenna
	29361970	Label UPC <BD>
	29361971	Label UPC <GD>
	2010098A	Connection cord
	2010200	Remote control cord
	232140	NMA-3057, AM loop antenna <D/T/W>
	24140315	RC-315T, Remote control
	25055018	CV-K-1, Conversion plug <W>
	25065462	YAE21-0237, FM adaptor <D/T/W>
	29342325	Instruction manual E
	29342326	Instruction manual U6 <P>
	29342328	Instruction manual U3 <T/W>
	29358002K	Service station list <D>
	29365019B	Warranty card <D>
	3010054	UM-3, Battery

NOTE: <D>: 120V model only
<P>: 230V model only
<PB>: U.K model only
<W>: Wolrdwide model only
<T>:Taiwancase model only
<B>: Black model only
<S>: Silver model only
<G>: Golden model only

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